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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,999

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EXAMINER

MILLER, MICHAEL G

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/591,999	<b>Applicant(s)</b> ASAI, MASATO	
	<b>Examiner</b> MICHAEL G. MILLER	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2008 and 15 December 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-10 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Examiner notes the amendments filed 08 DEC 2008 and 15 DEC 2008. The amendments introduce no new matter and are therefore accepted. As a result of the amendments, Claim 1 is amended, Claim 7 is canceled and Claim 21 is new.

### ***Response to Arguments***

2. Applicant's arguments filed 08 DEC 2008 and 15 DEC 2008 have been fully considered but they are not persuasive.

3. Applicant's argument in the 08 DEC 2008 amendment is that Ota does not talk about binder resins and Floch does not talk about the correct ones. Examiner respectfully disagrees. In the previous Office Action, item 5.a.ii, Examiner found that the binder resin was discussed in context of a low-index refractive layer. Column 3 Lines 40-63 teach a list of materials suitable for use including alkyl-based polymers, polyethers, polyesters, acrylics and urethanes – which are all listed in Claim 1.

4. Applicant's argument in the 15 DEC 2008 amendment is that by removing alkyl-based polymers, Ota would no longer be relevant. Examiner respectfully disagrees. Again, Ota teaches that the method disclosed at Column 5 Lines 10-46 can incorporate organic binder resins; examples of these resins are discussed further at Column 8 Lines 23-35 and include polybisphenol S glycidyl ether, which is a polymer containing a ether bond.

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5. Examiner maintains all grounds of rejection presented in the previous Office Action.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-6, 10 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Ota et al (U.S. Patent 5,925,438, hereinafter '438).

8. Claim 1 – '438 teaches a process for manufacturing an anti-reflection film comprising a film substrate and a low-refractive index layer. The method comprises the following steps:

- a. Applying a coating solution comprising
  - i. Coated fine particles composed of
    - (1) inorganic fine particles substantially made of silicon oxide (Column 5 Lines 34-45) and
    - (2) An organic polymer for covering the surface of the inorganic fine particles (Column 5 Lines 34-45 – not all the silicon alkoxide will hydrolyze, and the alkoxide which does not will be surrounding and coating the silicon oxide particles),

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- ii. A binder resin (Column 3 Lines 40-63 and Column 8 Lines 23-35, as Column 5 Lines 10-16 say the low-refractive index layer may be formed in this manner) and
    - iii. An organic solvent which has a boiling point of at least 100 degrees Celsius or higher and is miscible with water (Column 5 Lines 27-33, MIBK) to at least one side of the film substrate (Column 6 Lines 43-56 for the coating, Column 3 Lines 11-19 for the film substrate); and
  - b. Drying the coating layer (Column 6 Lines 43 – 56) to form the low-refractive index layer having voids (the prior art teaches using a listed solvent of Applicant and drying it in the same temperature range of Applicant; if Applicant's method produces voids, the prior art must necessarily produce voids if the same process is used),
  - c. Wherein the organic polymer for covering the surfaces of the inorganic fine particles is at least one of methyltrimethoxysilane (Column 5 Lines 34-35, an alkyl-based polymer) and polybisphenol S glycidyl ether (Column 8 Lines 23-35, a polymer having an ether bond), and
  - d. The binder resin is at least one of polybisphenol S glycidyl ether and tetrabromobisphenol A glycidyl ether (polymers having an ether bond).
9. Claim 2 – '438 teaches methyltrimethoxysilane (Column 5 Lines 21-26). Applicant discloses that MIBK is miscible with water.
10. Claim 3 – rejected as Claim 1 (the binder systems of Column 3 discuss crosslinking).

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11. Claim 4 – rejected as Claim 1 (MIBK is ketone-based).
12. Claim 5 – '438 teaches adding fluorine to the low-refractive index layer (Column 6 Lines 27-34).
13. Claim 6 – '438 teaches a method of forming silica granules of 30-60 nm (Column 6 Lines 9-13) and a method of forming a layer with a thickness of 100 nm (Column 12 Lines 21-26). If the particles start out between 30-60 nm and are constrained, after coating, to be no more than 100 nm with coating, the average coated particle diameter must be between 30 and 100 nm.
14. Claim 10 - '438 teaches forming a hard coat layer on one side of a substrate and then applying a low-refractive index layer on the hard coat layer (Column 11 Line 49 - Column 12 Line 26).
15. Claim 21 – rejected as Claim 1 (the ether polymer applies).

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

19. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over '438 in view of Floch et al (U.S. Patent 5,639,517, hereinafter '517).

20. Claim 8 – '438 does not teach a siloxane coating polymer. '517 teaches forming antireflective films by hydrolyzing silanes to produce colloidal silica (Column 5 Lines 51-65) and further teaches that it is possible to hydrolyze siloxanes containing arylalkoxy groups to the same effect (Column 5 Line 66 – Column 6 Line 7). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have combined the method of '438 with the technique of '517 because both teachings want to form a silica-based antireflective film and '517 teaches that siloxane systems with arylalkoxy groups can be used to do such.

21. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over '438.

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22. Claim 9 – '438 teaches a desired solid content of 0.1 – 10 wt% silica content (Column 5 Line 34-45). It is known in the art of coating that the ratio of solvent to polymer determines the viscosity, which determines the coating capabilities of the film. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to adjust the ratio of solvent to polymer to control the coating properties of the film, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

### ***Conclusion***

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL G. MILLER whose telephone number is (571)270-1861. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael G. Miller/  
Examiner, Art Unit 1792

/Timothy H Meeks/  
Supervisory Patent Examiner, Art Unit 1792